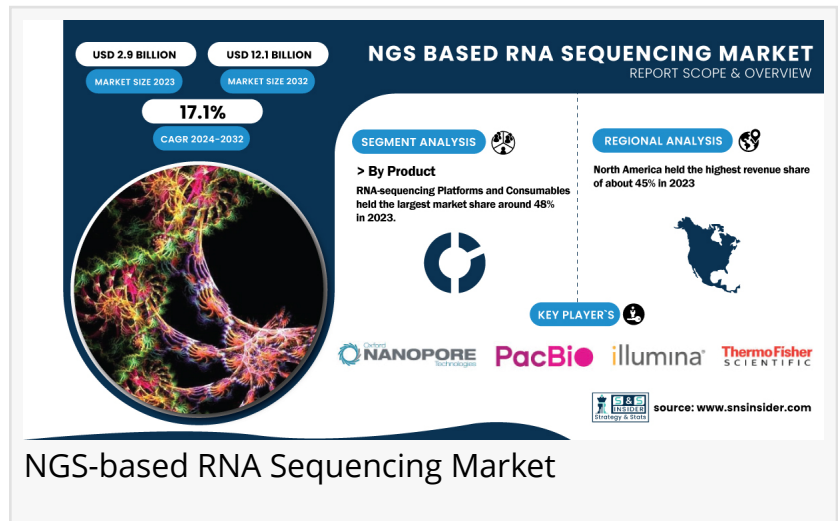


# NGS-Based RNA Sequencing Market to Surpass USD 12.1 Billion by 2032, Growing at a CAGR of 17.1%

*Rising demand for precision medicine & groundbreaking innovations in RNA sequencing drive growth in oncology, drug discovery, & personalized therapies.*

AUSTIN, TX, UNITED STATES, January 28, 2025 /EINPresswire.com/ -- According to Research by SNS Insider, The [NGS-based RNA Sequencing Market](#) size was estimated at USD 2.9 billion in 2023 and is expected to reach USD 12.1 billion by 2032 at a CAGR of 17.1% during the forecast period of 2024-2032.



The increasing dependence on NGS-based RNA sequencing is revolutionizing disease diagnosis and therapy, especially in cancer care.

RNA sequencing offers detailed gene expression profiles, which facilitate the identification of infrequent mutations, alternative splicing events, and new RNA isoforms, essential for tailored cancer treatment. Innovations such as Illumina's NovaSeq X series, introduced in 2023, provide ultra-high-throughput RNA sequencing that boasts improved speed and precision, setting the stage for affordable and scalable solutions in cancer genomics. The role of technology in drug discovery is growing, uncovering new biomarkers and pathways for targeted treatments, like mRNA vaccines and RNA interference therapies. Moderna's incorporation of RNA sequencing in 2023 to refine its mRNA therapeutics pipeline illustrates this trend, with pharmaceutical companies progressively employing RNA sequencing to improve personalized medicine, driving substantial market expansion.

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Key Players in NGS based RNA Sequencing Market

- Illumina, Inc. (TruSeq RNA Library Prep Kit)

- Thermo Fisher Scientific (Ion Torrent RNA Sequencing)
- Pacific Biosciences (PacBio Sequel System)
- Qiagen N.V. (QIAseq RNA Library Kit)
- Oxford Nanopore Technologies (MinION RNA Sequencing)
- Agilent Technologies (SureSelect RNA Sequencing)
- Roche Sequencing Solutions (KAPA RNA HyperPrep Kit)
- PerkinElmer (NEXTFLEX Rapid Directional RNA-Seq Kit)
- BGI Genomics (DNBSEQ RNA Sequencing)
- Eurofins Genomics (NGS RNA Sequencing Services)
- Bio-Rad Laboratories (ddSEQ Single-Cell RNA Sequencing)
- Takara Bio USA (SMARTer Stranded RNA-Seq Kit)
- Nugen Technologies (Ovation RNA-Seq System)
- CD Genomics (RNA Sequencing Service)
- Genewiz (RNA-Seq Service)
- Macrogen, Inc. (NGS RNA Sequencing Service)
- Novogene Corporation (RNA-Seq Service)
- Strand Life Sciences (RNA-Seq Solutions)
- BaseClear (RNA Sequencing Service)
- Zymo Research (Zymo-Seq RNA Library Kit)

## Segmentation Analysis

By Product, in 2023, the RNA-sequencing platform and consumables segment dominated the market, at nearly 48%.

This large market share is due to the rise in demand for fast, accurate, and efficient products, thus propelling the market. These platforms provide the technological substrate to scale RNA sequencing to broader applications, including whole transcriptome sequencing, gene expression measurement, and RNA polymorphism detection. Such platforms must be able to process an enormous volume of accurate data in a systematic way to feed genomics, personalized medicine, and disease research.

By Technology, sequencing by synthesis dominated the market with the highest market share in 2023.

Sequencing by synthesis is the most common RNA sequencing technology based on NGS. With the large-scale solutions delivered by SBS, exceptional accuracy and cost-effectiveness have gained a substantial market share in Illumina. This includes the sequential addition of nucleotides to a growing strand of DNA, where each incorporation is recorded. Subsequently, high-throughput sequencing can be employed, and this approach is referred to as Panel NGS methodology, which is considered suitable for the analysis of large numbers of transcriptions (transcriptomic studies) and gene expression itself. The technology's ability to produce large quantities of data at low error rates enables its application for RNA sequencing in both research and clinical use, including cancer genomics, rare diseases, drug development, and more.

By End-User, Research and academia segment dominated the market of NGS-based RNA sequencing in 2023.

This is owing to an increasing use of RNA sequencing in fundamental research, genomics, and molecular biology studies. Research institutions and academic laboratories that were leading the ownership for a market segment in 2023 that focus on mRNA expression, gene expressions, and biological processes parallel to that at the macro level. Besides being skilled in high-throughput and high-accuracy data acquisition, RNA sequencing has now become one of the integral tools for functional research on complex diseases, developmental biology, and evolutionary genetics.

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## NGS based RNA Sequencing Market Segmentation

### By Product & Services

- Sample Preparation Products
- By Workflow
- Library Preparation and Target Enrichment
- Quality Control
- By Method
- Manual Sample Preparation
- Microfluidic Sample Preparation
- Robotic Liquid Handling Sample Preparation
- RNA-sequencing Platforms and Consumables
- RNA-sequencing Services
- Data Analysis, Storage & Management
- Others

### By Technology

- Sequencing by Synthesis
- Ion Semiconductor Sequencing
- Single-molecule Real-time Sequencing
- Nanopore Sequencing

### By Application

- Expression Profiling Analysis
- Small RNA-sequencing
- Variant Calling and Transcriptome Assembly
- De Novo Transcriptome Epigenetics

### By End User

- Research and Academia
- Hospitals and Clinics

- Pharmaceutical and Biotechnology Companies
- Others

### Regional Analysis

In 202, North America dominated the market with a 45% market share. This leadership position is particularly influenced by a strong genomics research ecosystem, high-quality healthcare delivery systems, and significant government investment in research and innovation in the region. The regional leader the United States, was propelled by huge investments from government and private actors. As an example, the National Institutes of Health (NIH) of the United States invested more than USD 42 billion in medical research in 2023, with a significant share going to RNA sequencing for mapping out complex diseases such as cancer and neurologic conditions. Initiatives such as the All of Us Research Program and the Cancer Moonshot Initiative also seek to capitalize on this focus, gathering and sequencing RNA data for broader analysis to enhance precision medicine and cancer research progress.

### Recent Development

- In 2024, PacBio enhanced its HiFi RNA sequencing capabilities by upgrading its Sequel IIe System, offering improved throughput and longer read lengths. This update is designed to meet the needs of researchers requiring high-fidelity transcriptome data for advanced biological studies, including cancer research and gene regulation analysis.
- In 2023, Thermo Fisher launched the Ion Chef System, an automated platform that simplifies RNA sequencing library preparation. This innovation reduces hands-on time and minimizes workflow variability, improving overall efficiency in RNA sequencing processes.

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